



The Square Kilometre Array (SKA) - to be constructed 80km outside the South African town of Carnarvon - will be the most powerful radio telescope in the world. Its main focus will be to study the cosmic radiation in order to help mankind learn more about astrology and how we all came to be here. The construction of the SKA will be done by various contractors who will stay in construction camps on site for extended periods of time. For this reason, basic infrastructure and services (roads, fibre optics, electricity, water, and sanitation) had to be constructed.



Sustainable Engineering Solutions (Pty) Ltd was awarded the contract to design, supply and install the following plants to serve the needs of the two construction camps on site:

- Two Waste Water Treatment Plants (WWTP), 8m<sup>3</sup>/day and 15m<sup>3</sup>/day
- Three water chlorination stations
- Three Reverse Osmosis systems
- Booster pump sets for reticulation of drinking and wash water

### Waste Water Treatment

The two WWTPs operate on a basis close to the well-known 5-stage Phoredox process.



*8000l/d WWTP nearing completion*

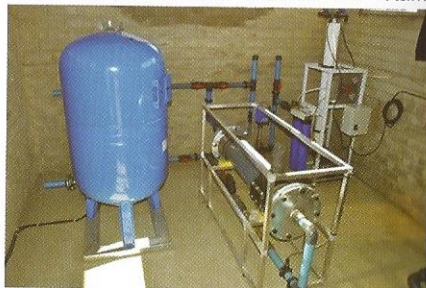
The Sustainable Engineering process uses an anaerobic stage, two separate anoxic stages (respectively on the receiving and

delivery sides of the aeration stage), an aeration stage and a clarification stage.

Return activated sludge is pumped back to the anaerobic chamber from the clarification stage and back from the second anoxic stage to the first anoxic stage. Sustainable Engineering has designed and built numerous of these small WWTPs ranging from 5m<sup>3</sup>/day to 100m<sup>3</sup>/day. All of our WWTP consistently meet the DWA's General Standards for treated waste water.

### Drinking and Washing Water Treatment and Reticulation

Borehole water is used at the SKA for drinking and general domestic purposes. However, the quality of borehole water needed upgrading. Sustainable Engineering installed Reverse Osmosis systems at three different locations to serve the drinking water needs of the construction staff.



*RO, chlorination and booster station*

Sustainable Engineering also installed automatic chlorinators, accurately dosing liquid chlorine on a metered basis, to ensure that the wash water reticulation network stays clean and sterile. In addition, Sustainable Engineering installed pressure booster pumps for wash water delivery into three different networks.



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